European Journal of Business and Management
ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online)
Vol.16, No.8, 2024

Integrating Environmental Sciences and Sustainability for Better Project Management

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Abstract

It is no longer a fad to make Project Management sustainable; rather, it is an urgent issue in our world today. Businesses and governments have obligations to sustain their activities, and project managers are called to adopt these procedures in their daily operations. The issue under focus in this paper is how Environmental Sciences and Sustainability can improve Project Management thus resulting in better, more responsible and successful projects.

Keywords: Environmental Sciences, Sustainability

DOI: 10.7176/EJBM/16-8-03
Publication date: October 30th 2024

1. Understanding Environmental Sciences and Sustainability

Environmental science involves studying the environment and finding solutions to environmental problems, as it seeks to harmonize diverse fields like ecology, biology or even chemistry that normally study natural processes when humans can interact with them, thus leading to improper use of resources, among other problems. On the other hand, sustainability involves meeting present needs without compromising the needs of the future generation, economically, socially or environmentally (Rosen 2020).

2. The Role of Environmental Sciences in Project Management

2.1 The Risk Management

When project managers understand environmental influences, they can recognize possible dangers that may delay a project, increase costs, or jeopardize it altogether. For instance, familiarity with weather patterns found around certain localities may be used as a basis for making schedules, whereas knowledge of the earth and the soil could be used when choosing where buildings should be built (Vyas 2008).

2.2 Regulatory Compliance.

In many projects, specifically construction, energy or manufacturing projects, there are laws that govern them. Project managers will gain exposure to environmental laws through Environmental Sciences. This knowledge will assist them in ensuring that their projects comply with the law, thereby preventing costly fines and time wastage (Vyas 2008).

2.3 Resource Efficiency

Projects should apply environmental science to become sustainable. Doing so can help minimize waste and optimize resource use, thus lowering costs without compromising the project's environmental impact (Vyas 2008).

3. Sustainability in Project Management

3.1 Sustainable Design and Planning

Integrating sustainability at the beginning of the project contributes to designs that are functional and economically viable as well as ecologically sound. For example, a project manager may include the use of green materials or the installation of renewable energy sources in the project plan which can mitigate operational costs in the long run as well as minimize the adverse effects to the environment (Oguntona & Aigbavboa 2024).

3.2 Stakeholder Engagement

The emphasis on sustainability is on the rise among all stakeholders including investors, clients, and the public. As such, project managers who incorporate sustainability in their project steps lay good grounds for these groups, showing concern for social issues and possibly leading to higher positive acceptance and success of the concerned project (Blak Bernat *et al*. 2023).

3.3 Long-Term Viability

It has been observed that generally the projects which have incorporated sustainable design are more likely to withstand the test of time. Be it reducing the negative impacts on the environment, gaining the support of the local community, or preventing the project from any possible future bans, the concept of sustainability plays a role in enhancing the chances of projects being successful and enduring (Al-Anbary 2024).

4. Case Studies

4.1 Renewable Energy Project

An appropriate case study in this context would be the case of Cape Wind Project in the U.S. The goal of the project was to study the possibility of constructing an expansive offshore wind farm in Nantucket Sound. The purpose emphasized how various environmental sciences will be used with huge environmental impact assessments to help save endangered species like the North Atlantic Right Whale. Furthermore, it was noted that sustainability came in when the use of clean energy and the project satisfied the interest of the local stakeholders, especially in the areas of tourism, property prices, and wildlife preservation. Despite obtaining a ruling from the federal government in 2010, there were many obstacles to the implementation of the project. For example, there was opposition from community and political leaders on environmental grounds and due to concerns about potential financial repercussions (National Geographic 2023).

The Cape Wind Project is a clear example of why it is important to incorporating environmental sciences and sustainability into project management, especially in a renewable energy context. It shows the importance of carrying out thorough Environmental Impact Assessments (EIAs) to reveal and reduce the likely negative effects the project might have on local ecosystems. Moreover, in projects with such a high impact regarding the conservation of a significant number of species, like the North Atlantic right whale, an effective approach such as these assessments, which align with the project goals to improve the environment, should always be followed. In addition to these, the case reminds us of the importance of having managerial capacities for communication and engagement with local stakeholders. By addressing their concerns related to the possible impact of the wind farm on tourism, property values, and wildlife conservation and integrating these into the construction plans, the project managers can also create a stronger sense of ownership of the project among the local communities and contribute to the generation of sustainable outcomes that effectively balance the interests of all actors to the outcomes. Furthermore, this project aimed to maximize vulnerable resource efficiency without overlooking equally important ecosystem impacts and established a solid foundation for social progress and environmental protection. Finally, the case also reminds that the project management also should have capacity to adapt to societal demands. In light of legal opposition to the project and changing public opinion, this project provides an exemplary case of why and how project managers should listen to the signals given by future stakeholders and be ready to implement provisions for these changes in demands. Institutional integration within the demanding laws and regulations also speaks to the importance of the integration of environmental laws and regulations at each design stage, a practice expected of project management to ensure compliance and sustainable development. In general, the practitioners should realize that the Cape Wind case embodies the philosophy of continuous environmental sciences and sustainability throughout the project management process, in order to encourage the participation of key stakeholders, reduce risk, and contribute to the successful implementation of renewable energy projects.

4.2 Green Building Project

An example of a green building project found in the world is the Monash Woodside Building for Technology and Design in Melbourne, Australia. The eco-friendly building stood out because it used sustainable building materials and energy-saving technologies. In fact, the builders built the Monash Woodside Building for Technology and Design to the highest green standards, which ultimately resulted in lower energy usage with

minimal environmental impact. This is an ideal case of how we can create a widespread cultural revolution to meet the demand of green buildings without sacrificing financial viability while still being environmentally friendly. In fact, the building was designed to be good for the environmental and to be cheaper to operate in the long term (World Economic Forum 2024).

The Monash Woodside Building for Technology and Design, located in Melbourne, Australia, serves as a comprehensive example of how environmental sciences and sustainability can be integrated into management processes for building projects in the green building movement. The project is significant because it uses sustainable materials and energy-efficient technologies to comply with the most stringent green building standards. The building results in not only less energy use but also has a significantly less environmental impact. This should serve as an example to how a culture of environmentally responsible construction can take place while still maintaining financial viability. It is important for the Monash Woodside Building to effectively care for the environment and achieve cost savings over time. This will demonstrate that sustainability in project management can contribute to a successful project, addressing the responsibilities of environmental sustainability and operational efficiency**.** Therefore, this construction project serves as proof to how commitment to the idea of sustainability can result in a construction project that promotes a larger framework of green architecture.

5. Conclusion

Incorporating environmental sciences and sustainability into project management methodologies is vital. With consideration of environmental implications, adherence to compliance regulations, and designing for sustainability, there is a great opportunity for project managers to deliver projects that are delivered successfully in the short term relating to the environment but can also benefit society in the longer term. Hence, the importance of sustainability in project strengthens the need for project managers who has the skill sets in environmental sciences and sustainability.

6. Action Call

For organizations and project managers to work in an environmental-friendly manner, they have to learn and work together in inculcating environmental sciences and sustainability in their work processes that will lead to improvement in project outcomes and a very responsible and sustainable future.

References

Al-Anbary, M. 2024. *Sustainable Project Management in the Construction Sector: An Analysis of Mapping, Assessment, and Follow-up of Sustainable Initiatives in Two Construction Projects in the Netherlands and Belgium* (Master's thesis, NTNU).

Blak Bernat, G., Qualharini, E. L., and Castro, M. S., 2023. Enhancing Sustainability in Project Management: The Role of Stakeholder Engagement and Knowledge Management in Virtual Team Environments. *Sustainability*, *15*(6), p.4896.

National Geographic., 2023, October 19. *Case Study: Cape Wind Project*. Education.nationalgeographic.org. https://education.nationalgeographic.org/resource/case-study-cape-wind-project/

Oguntona, O. A., and Aigbavboa, C. O., 2024. *Biomimicry and Sustainable Building Performance: A Nature-inspired Sustainability Guide for the Built Environment*. Taylor & Francis.

Rosen, M. A., 2020. Sustainability: Concepts, Definitions, and Applications. *Building Sustainable Cities: Social, Economic and Environmental Factors*, pp.15-26.

Vyas, N., 2008. Environmental aspects of project management. *Vikalpa*, *33*(2), pp.65-70.

World Economic Forum., 2024. *COP26: Here are 7 of the world's greenest buildings and best solutions to build sustainably*. https://www.weforum.org